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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,620	10/16/2001	Richard L. Coulson	5038-118	6345

8791 7590 11/12/2003

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EXAMINER

VERBRUGGE, KEVIN

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 11/12/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/981,620

Applicant(s)

COULSON, RICHARD L.

Examiner

Kevin Verbrugge

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 and 40-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 and 40-72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

This final Office action is in response to Amendment B, paper #11, filed 8/13/03 which amended several claims, canceled claims 38 and 39, and added new claims 52-72. Claims 1-37 and 40-72 are therefore pending. All objections and rejections not repeated below are withdrawn.

Claim Objections

Claim 51 is objected to because of the following informalities: "wherein" was apparently inadvertently deleted and should be reinserted. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The attempted 35 U.S.C. § 103 disqualification was not proper because it did not include the key phrase "at the time the invention was made". Therefore, the rejection in question (Kitagawa in view of Royer) is repeated (with appropriate modifications for claim amendments). Anticipating a proper disqualification of the Royer reference, the Examiner has also provided a new 103 rejection using the Nordal reference.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 6-11, 14-23, 25-31, 33-37, and 40-72 are rejected under 35

U.S.C. 103(a) as being unpatentable over EP 0 702 305 A1 to Kitagawa in view of US 2003/0061436 A1 to Royer, Jr. et al.

Regarding claims 1, 2, 8, 9, 10, 11, 14-23, 25-31, 33-37, and 40-72, Kitagawa shows the claimed hard disk as disk memory drive 12 in Fig. 1. He shows the claimed cache memory as non-volatile memory 16. He shows the claimed memory controller as main processor 15 and disk memory drive control circuit 13. He shows the claimed queue as buffer memory 14.

Kitagawa does not teach that his non-volatile memory is a polymer ferroelectric memory, however it would have been obvious to one of ordinary skill in the art at the time the invention was made to make it so for the attendant advantages of polymer ferroelectric memory. Nothing in Kitagawa's disclosure precludes the use of any type of memory as long as it is nonvolatile and not a rotating disk (since Kitagawa is using the nonvolatile memory to overcome the latency delays associated with a rotating disk memory). Royer discloses a polymer ferroelectric memory and teaches that it is particularly well-suited for non-volatile memory uses (see paragraph 15).

Regarding claim 3, Kitagawa's memory controller processes digital signals and is therefore a digital signal processor. If Applicants dispute this interpretation of DSP, then

specific reference must be made to the specification to show why this interpretation of DSP is inappropriate.

Regarding claim 4, Kitagawa's memory controller is an integrated circuit with a specific application (controlling memory) and is therefore an ASIC. If Applicants dispute this interpretation of ASIC, then specific reference must be made to the specification to show why this interpretation of ASIC is inappropriate.

Regarding claims 5, 12, 13, 24, and 32 Kitagawa does not show the claimed elements. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kitagawa's device in line with the claimed elements for purposes of enhanced circuit operation.

Regarding claim 6, Kitagawa's memory controller resides with the cache in the disk memory apparatus 1.

Regarding claim 7, Kitagawa's memory controller is separate from the cache and the hard disk as shown in Fig. 1.

Claims 1, 3, 4, 6-11, 14-23, 25-31, 33-37, and 40-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 702 305 A1 to Kitagawa in view of US 2002/0160116 A1 to Nordal et al.

Regarding claims 1, 2, 8, 9, 10, 11, 14-23, 25-31, 33-37, and 40-72, Kitagawa shows the claimed hard disk as disk memory drive 12 in Fig. 1. He shows the claimed cache memory as non-volatile memory 16. He shows the claimed memory controller as main processor 15 and disk memory drive control circuit 13. He shows the claimed queue as buffer memory 14.

Kitagawa does not teach that his non-volatile memory is a polymer ferroelectric memory, however it would have been obvious to one of ordinary skill in the art at the time the invention was made to make it so for the attendant advantages of polymer ferroelectric memory. Nothing in Kitagawa's disclosure precludes the use of any type of memory as long as it is nonvolatile and not a rotating disk (since Kitagawa is using the nonvolatile memory to overcome the latency delays associated with a rotating disk memory). Nordal teaches that it was known to use polymer ferroelectric memories for nonvolatile storage purposes in paragraph 0003, particularly the first sentence where he teaches that "ferroelectric polymers ... and other classes of polymers with ferroelectric or electret properties are now also being developed for use as memory films in non-volatile data storage devices."

As taught by Nordal, polymer ferroelectric memory was a known type of nonvolatile memory at the time of the invention and it therefore would have been an

obvious choice to use for the nonvolatile memory in Kitagawa's device. Kitagawa's silence on any particular type of memory required for his nonvolatile memory unit (other than a disk) would indicate to the skilled artisan that any type of nonvolatile memory (other than a disk) would be acceptable in his device, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a polymer ferroelectric memory for the design benefits that it provides.

Regarding claim 3, Kitagawa's memory controller processes digital signals and is therefore a digital signal processor. If Applicants dispute this interpretation of DSP, then specific reference must be made to the specification to show why this interpretation of DSP is inappropriate.

Regarding claim 4, Kitagawa's memory controller is an integrated circuit with a specific application (controlling memory) and is therefore an ASIC. If Applicants dispute this interpretation of ASIC, then specific reference must be made to the specification to show why this interpretation of ASIC is inappropriate.

Regarding claims 5, 12, 13, 24, and 32 Kitagawa does not show the claimed elements. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kitagawa's device in line with the claimed elements for purposes of enhanced circuit operation.

Regarding claim 6, Kitagawa's memory controller resides with the cache in the disk memory apparatus 1.

Regarding claim 7, Kitagawa's memory controller is separate from the cache and the hard disk as shown in Fig. 1.

Response to Arguments

Applicant's arguments have been considered but are not persuasive.

The only argument presented regarding the previous 102 rejection was that the Kitagawa reference does not include the newly claimed polymer ferroelectric memory. This argument has been addressed by the new grounds of rejection where the claims previously rejected under 102 are now rejected under 103.

The only argument presented regarding the previous 103 rejection is the improper attempt to disqualify the Royer reference. As mentioned above, the key phrase "at the time the invention was made" is missing and therefore the disqualification attempt is improper. However, the Examiner anticipates Applicant correcting this omission in the next response and has therefore provided a second 103 rejection using the Nordal reference.

New claims 52-72 are presented without their particular novelty being pointed out. Specifically, it is not explicitly stated what elements of the claims are believed novel over the applied references and the claims appear, at first glance, to be reworded, and somewhat broader, versions of the previously pending claims. Accordingly, the

claims have been rejected on the same grounds as the previously submitted claims. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited.

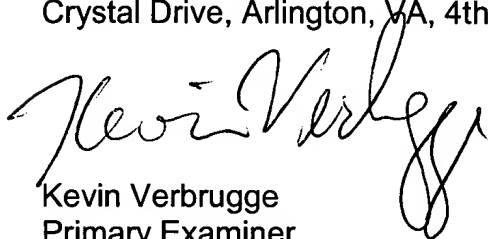
Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning a communication from the Examiner should be directed to the Examiner by phone at (703) 308-6663.

Any response to this action should be labeled appropriately (serial number, Art Unit 2188, and After-Final, Official, or Draft) and mailed to Commissioner for Patents, Washington, D.C. 20231, faxed to (703) 872-9306, or delivered to Crystal Park 2, 2121 Crystal Drive, Arlington, VA, 4th Floor Receptionist.



Kevin Verbrugge
Primary Examiner
11/6/03